CLAIMS:

1. A fuzing method to ensure that a munition projectile ejected from a gun barrel is in inertial flight and that conditions for a fuze located in the projectile are safe for arming, the method comprising:

fixing a 3-axis accelerometer in the projectile with an X-axis aligned in a longitudinal direction for sensing deceleration in the flight direction;

connecting signals from the 3-axis accelerometer to a micro-controller;

setting a loop counter (q) to operate the micro-controller in cyclic loops;

computing averages of the 3-axis accelerometer signal readings within the cyclic loops and outputting the computed average readings at a predetermined initial time (t=i) determination and at a predetermined final time (t=f) determination in the X-direction (that are, a_{xi} and a_{xf}), total accelerometer magnitudes in the 3 axes (that are, a_{Ti} and a_{Tf}) and accelerometer final magnitude in the YZ lateral plane (that is, a_{yzf}); and

calculating ratio R_x being a_{xf} to a_{xi}, ratio R_T being a_{Tf} to a_{Ti} and ratio R_{yz} being a_{yzf} to a_{xi}; wherein $R_x < 1$ and $R_T < 1$ would indicate that the projectile is decelerating continuously and gradually, and that the projectile is safe, with $R_{yz} < 1$, before a ready signal is outputted from the microcontroller to proceed with arming of the fuze.

2. The method according to claim 1, further outputting a complementary negative ready signal when $R_x < 1$, $R_T < 1$ and $R_{yz} < 1$.

3. The method according to claim 2, further computing a logical AND function on both the positive and negative ready signals to generate an arm trigger signal.

4. The method according to any one claims 1-3, wherein the predetermined initial time determination and the predetermined final time determination are provided by an internal clock in the micro-controller.

5. The method according to any one of claims 1-4, wherein the predetermined initial time determination is substantially 2s and the predetermined final time determination is substantially 8s from launch of the projectile.

6. The method according to any one of claims 1-3, wherein the predetermined initial time determination and the predetermined final time determination are provided by an analog timer controlling the output of the microcontroller.

7. The method according to any one of claims 1-6, wherein moving average accelerometer readings are obtained when the micro-controller algorithm parameter (k) is set numerically at a multiple of m and the micro-controller is sampling at m Hz.

8. The method according to any one of claims 1-6, wherein simple average accelerometer readings are obtained when the micro-controller algorithm parameter (k) is set numerically at m and the micro-controller is sampling at m Hz.

9. The method according to any one of claims 1-8, wherein the projectile is declared to be in free flight when R_x is substantially < 0.65, R_T is substantially < 0.8, R_{yz} is substantially < 0.45 and the magnitude of acceleration in the X-direction is bounded below 12 m/s^2, after examining scenarios of the projectile being transported.

10. The method according to any one of claims 6-9, further comprises activating a set-back switch to turn on electric power from a battery to the accelerometer, to the microcontroller and to the analog timer, wherein the set-back switch is actuated by launching of the projectile in an associated gun barrel.